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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,650	02/01/2001	Kenji Fukaya	P 0276746 U3-0041-TS	8329

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Nixon & Vanderhyde PC
1100 North Glebe Road
8th Floor
Arlington, VA 22201-4714

EXAMINER

TUNG, TA HSUNG

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 01/03/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,650

Applicant(s)

FUKAYA

ETAL

Examiner

T. TUNG

Group Art Unit

1743

Page No. 8

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-5 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-5 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
 - ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 1102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3, 5 are rejected under 35 U.S.C. 102(a) as being anticipated by Ep 899562.

Ep discloses a cup-shaped solid electrolyte with an outside electrode, an inside electrode and a heater with a contact portion contacting the internal surface of the solid electrolyte. See columns 31, 55, 57, 58. Particularly at columns 57 and 58, Ep suggests that the heater has a sparse heating portion. Thus, there must correspondingly be a dense heating portion. The heater contacting portion contacting the electrolyte wall is stated to be other than the sparse heating portion. Presumably, this would mean that the contact portion is at or adjacent the dense heating portion.

In regard to claim 5, since the heater contact portion is adjacent the distal end of the solid electrolyte (as is shown in Ep), the maximum heating portion would be adjacent the distal end of the heater. This would in turn cause the maximum heating portion to be within 3/4 of a segment extending between the distal end of the heater and a mid-point of the heater.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1102

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ep '562 in view of Kojima et al 5,895,591.

These claims differ by calling for the heater pattern to be such that it has maximum resistance adjacent the heater contact portion.

Kojima discloses a heater pattern that varies in width (and thus resistance) or density in order to adjust heating at various desired locations. See col. 6, line 11 to col. 7, line 13; col. 8, line 45 to col. 9, line 13. It would have been obvious for Ep to maximize the heater resistance adjacent the contact portion so as to achieve maximum heating thereat, since Kojima discloses varying heater resistance and varying heater density to be equivalent techniques for adjusting the manner in which heat is distributed.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Japan document 5-126789.

Japan discloses a cup-shaped solid electrolyte with an outside electrode, an inside electrode and a heater having a contact portion contacting the internal surface of the electrolyte. See the English abstract and figures 2-4. The heater generates maximum heat at a position where the electrodes are located. Since both the electrodes and the heater contact portion are located

Art Unit: 1102

adjacent the distal end of the solid electrolyte, the maximum heating position would be adjacent the heater contact portion.

A translation of this reference has been ordered with the PTO translation section. Presumably, it would be available for the next Office action.

In regard to claim 5, as discussed before, the maximum heating location would be within $\frac{3}{4}$ of a segment between the distal end of the heater and a mid-point of the heater because the heater contact portion is located adjacent the distal end of the solid electrolyte.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '789 in view of Ep '562 and Kojima et al '591.

These claims differ by calling for the maximum heating position to be adjacent the heater contact portion and for the maximum heating to be generated by adjusting the heater resistance or heater density.

As discussed before, Ep discloses arranging a high density heater portion to be adjacent the heater contacting portion with the electrolyte internal surface, and Kojima discloses controlling heating by adjusting heater width (and thus resistance) and heater density. It would have been obvious for Japan to locate maximum heating at the heater contact portion, because Ep teaches that to be desirable. It would also have been obvious to generate maximum heating by adjusting heater resistance or heater density, since Kojima shows these to be equivalent and known techniques.

Art Unit: 1102

Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2 and 3, penultimate line, "contact portion" is vague, since the contact of this portion with another object (e.g. the inner wall of the electrolyte) has not been recited. Presently, any portion of the heater can be considered a "contact portion".

Claim 4, last two lines call for a high resistive portion to be provided closer to a proximal end of the sensor. In as much as the drawings (e.g. figure 4A) show the proximal end to be toward the open end of the sensor away from the heater contact portion, the recited structure would appear to contradict the purpose of the invention.

Claim 5, last three lines, "for more than one fifth of a time required for the heat generating peak position of the heater to reach 900 degrees C" appears to be process language and is not understood.

Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure regarding figure 12 is confusing. At page 14, lines 5-10, of the specification, the heater is stated to have narrow width, high resistive portion 315 at its proximal end. Heater portion 315 is not shown in figure 12 to have a narrow width, at least not the portion at the proximal end. While the lower section of heater portion 315 has a narrow width, this

Art Unit: 1102

section is at the distal end, not the proximal end. Also, why should the proximal end of the heater, which is located away from the heater contact portion 30, be the high-resistive portion? Remember, applicant's invention resides in having maximum heating (high-resistive portion) adjacent the heater contact portion.

The subject matter of the last three lines of claim 5 is not understood, as discussed before. Also, it is not evident where is the supporting discussion of this subject matter.

At page 11, line 17, a "comparative example" is discussed. However, it is not evident how the heater is arranged in this example. Does figure 4B represent the "comparative example" heater arrangement? If so, this figure needs to be labelled as prior art.

Query is made of the following in the specification. Page 9, line 21, should "12" be --13--? Page 10, line 22, should "A1" be --A2--?

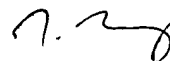
Jach et al 6,261,429 discloses a heater pattern with varying widths. See col. 3, line 17. Kato et al 6,287,439 discloses a heater pattern with varying density. See figures 3A and 3B.

The examiner can be reached at 703-308-3329. His supervisor Jill Warden can be reached at 703-308-4037. Any general inquiry should be directed to the receptionst at 703-308-0661. A fax number for TC 1700 is 703-872-9310.

Application/Control Number: 09/774,650

Page 7

Art Unit: 1102

A handwritten signature in black ink, appearing to be 'Ta Tung', written in a cursive style.

Ta Tung

Primary Examiner

Art Unit 1743